

NO. 2

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This document includes

2 pages, 2 tables and
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We wish to correct an error in Report No. 16, p. 30 (Table 57A) which was represented as comparing effects of smoke from Pall Mall and Sano cigarettes. The cigarettes used in this experiment were in fact unfiltered 85 mm Pall Mall cigarettes, compared with filtered 85 mm Sano cigarettes (charcoal acetate filter).

STUDIES ON SALIVATION

An additional experiment has now been completed comparing the effects of smoke from 70 mm unfiltered Sano cigarettes with the effects of smoke from unfiltered Pall Mall cigarettes (cut down to the same size) in groups of twelve male Millerton Swiss mice. Ten puffs were studied in each case, using the first five puffs of each of two cigarettes smoked without interruption of the one puff per minute cycle.

The conditions of the smoking machine were as in previous experiments namely, 35 ml puffs of two seconds duration taken at intervals of 58 seconds. The smoke persisted for 15 seconds in the inhalation chamber, was expelled in 3 seconds and followed by fresh air for 40 seconds. Whenever Cambridge filters were used, they were interposed into the smoke stream between the proximal end of the cigarette and the inhalation chamber.

Salivation was measured according to our standard procedure. Four determinations were made in each animal, one hour apart. The first and second determinations established the control base level of salivation. The third determination of salivation was made immediately after exposure of the animals to smoke; the fourth determination occurred one hour later.

The results are shown in Table 60, and the statistical analysis is described in Table 61.*

Comments

While none of the changes observed are statistically significant, the trends in all respects are similar as in earlier experiments as follows:

The smoke from unfiltered Pall Mall and unfiltered Sano cigarettes appears to inhibit salivation immediately after smoke exposure. Filtra-

* We are beginning in this report to number all tables and figures consecutively starting with No. 1 for the first table in Report No. 1, dated March 31st, 1967. For this reason, the first table in the present report is numbered Table 60.

tion by means of a Cambridge filter eliminates this inhibitory effect. Filtration with a charcoal acetate filter (Report No. 16, p. 30 [Table 57 A]) also prevented the salivation-inhibiting effect of Sano cigarettes.

The present data suggest that unfiltered Pall Mall and unfiltered Sano cigarettes exert similar salivation-inhibiting effects. The fact that the nicotine content of unfiltered Pall Mall cigarettes is much higher than that of unfiltered Sano cigarettes and their salivation-inhibiting potencies are approximately the same, suggests that the salivation inhibition of tobacco smoke is due to factors other than nicotine, or that nicotine content is not correlated with salivation inhibition. It must be realized that presently, this is a working hypothesis based on preliminary data and not a firm conclusion.

The studies on dose-response curves with intraperitoneally-injected nicotine (suggested by Dr. Osdene) will contribute to the clarification of this question. The preliminary study above reported was done on unselected mice including high, low and intermediate salivators. The wide variations of the salivation performance of these animals suggest that in order to obtain more conclusive results, it is advisable to perform these experiments on groups of mice preselected for their uniformly high (low or medium) base salivation.

Typing (as to degree of base salivation) of a new herd of one thousand mice is now underway, and the above-mentioned nicotine studies will begin upon completion of typing.

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Table 60

Immediate and Residual Effects on Salivation Rates of a Ten-Minute Exposure to Smoke (Unfiltered Pall Mall or Unfiltered Sano), with or without Cambridge Filter, Prior to the Third Salivation

| Treatments | Measurements (taken at hourly intervals) | | | |
|------------------------------|--|-------|-------|-------|
| | 1 | 2 | 3 | 4 |
| Control | 19.58 (12)* | 20.00 | 16.67 | 17.58 |
| Machine exposed | 21.67 (12) | 18.58 | 12.50 | 22.58 |
| Pall Mall | 18.67 (12) | 14.83 | 7.00 | 15.25 |
| Sano | 19.75 (12) | 18.08 | 9.42 | 10.92 |
| Pall Mall + Cambridge filter | 18.67 (12) | 14.00 | 14.00 | 18.17 |
| Sano + Cambridge filter | 18.83 (12) | 11.58 | 12.92 | 13.92 |

* Number of observations on which all means in this line are based.

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Table 61

Comparison of Six Treatments during Salivation Measurements (Control, Machine Exposed, Exposed to Pall Mall Smoke, Exposed to Sano Smoke, Exposed to Cambridge-filtered Pall Mall Smoke, Exposed to Cambridge-filtered Sano Smoke)

| Salivation Measurement 1 | | | | | | |
|--------------------------|----|---------|-------|-------|-------|-------|
| Source | DF | SS | MS | F cal | F 95% | F 99% |
| Treatments | 5 | 79.1 | 15.8 | | | |
| Error | 67 | 10514.8 | 159.3 | .099 | 2.37 | 3.34 |
| Total | 72 | 10593.9 | | | | |

| Salivation Measurement 2 | | | | | | |
|--------------------------|----|--------|--------|-------|-------|-------|
| Source | DF | SS | MS | F cal | F 95% | F 99% |
| Treatments | 5 | 620.2 | 124.05 | | | |
| Error | 67 | 8672.4 | 131.4 | .944 | 2.37 | 3.34 |
| Total | 72 | 9292.7 | | | | |

| Salivation Measurement 3 | | | | | | |
|--------------------------|----|--------|-------|-------|-------|-------|
| Source | DF | SS | MS | F cal | F 95% | F 99% |
| Treatments | 5 | 702 | 140.4 | | | |
| Error | 67 | 6415.5 | 97.2 | 1.444 | 2.37 | 3.34 |
| Total | 72 | 7117.5 | | | | |

| Salivation Measurement 4 | | | | | | |
|--------------------------|----|---------|-------|-------|-------|-------|
| Source | DF | SS | MS | F cal | F 95% | F 99% |
| Treatments | 5 | 963.7 | 192.8 | | | |
| Error | 67 | 11677.6 | 176.9 | 1.089 | 2.37 | 3.34 |
| Total | 72 | 12641.3 | | | | |

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